

CLAIMS

What is claimed is:

- 5     1.     An image control accelerometer system comprising:  
         an accelerometer module for detecting movement;  
         a movement analysis module for determining a direction of said  
movement; and  
         an input protocol generation module for generating input indication  
10 signals that indicate a direction of said movement.
2.     The system of Claim 1 wherein said accelerometer module detects  
movements in a computer mouse and said input protocol generation module  
forwards corresponding cursor control signals to a computer system.
- 15     3.     The system of Claim 1 wherein said accelerometer module comprises:  
         a proof mass module for changing capacitance characteristics based  
upon movement of a proof mass; and  
         a capacitance/voltage conversion module for converting said changing  
20 capacitance characteristics to corresponding voltage changes.
4.     The system of Claim 1 wherein said movement analysis module  
comprises:  
         a voltage analysis module for analyzing a change in a voltage level;

a first direction correlation module for correlating a change in said voltage level greater than a threshold value to a first direction;

a stationary correlation module for correlating a voltage level at said threshold value to a stationary status; and

5 a second direction correlation module for correlating a change in said voltage level less than a threshold value to a second direction.

5. The system of Claim 4 further comprising a coordination module for coordinating direction indications from said first direction correlation  
10 module, said stationary correlation module, and said second direction correlation module and forwarding direction indication information to said input protocol module generation module.

6. The system of Claim 1 wherein said input protocol generation module  
15 includes a quadrature waveform generator module for generating quadrature waveform signals.

7. The system of Claim 6 wherein phases shifts in different channel square waves of said quadrature waveform signals correspond to said direction of said  
20 movement.

8. An image control accelerometer method comprising:  
sensing movement of an accelerometer proof mass;  
associating said movement with a movement status; and  
25 indicating said movement status.

9. The method of Claim 8 wherein said sensing comprises:

changing a capacitance characteristic in response to a movement of said proof mass; and

5 altering a voltage to correspond to changes in said capacitance characteristic.

10. The method of Claim 8 wherein said correlating includes:

determining if a voltage level is at, above or below a threshold value;

10 associating a first direction movement status with a voltage level greater than said threshold value;

associating a second direction movement status with voltage less than said threshold value; and

15 associating a stationary movement status with a voltage level at said threshold value.

11. The method of Claim 9 wherein said indicating said direction includes indicating if a movement is up or down and left or right.

20 12. The method of Claim 9 wherein a plane of said movement is approximately parallel to a display plane.

13. An image control accelerometer system comprising:

25 an accelerometer for detecting movement associated with controlling an image on a display screen;

a logic circuit for obtaining a voltage corresponding to said movement, said logic component communicatively coupled to said accelerometer; and

a input protocol generation component for generating an information input signal, said input protocol generation component communicatively

5 coupled to said control circuit.

14. The system of claim 13 wherein said logic component is an application specific integrated circuit that directs application of a voltage to said accelerometer and directs measurement of changes in said voltage.

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15. The system of claim 13 wherein said accelerometer comprises:

a silicon mass that moves based upon forces applied to said system;

a silicon spring for suspending said silicon mass and permitting movement depending upon accelerations associated with said forces;

15 a movable silicon finger component that moves in conjunction with said silicon mass; and

a stationary silicon finger that forms a variable capacitance structure with said movable silicon finger, wherein said capacitance varies in accordance with movement of said movable silicon finger.

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16. The system of claim 15 wherein a voltage is applied across said moveable silicon finger and said stationary finger and variations in said capacitance cause changes in said voltage.

17. The system of claim 13 wherein said input protocol generation component is a quadrature waveform generator for generating quadrature waveform signals.

5 18. The system of claim 17 wherein said quadrature signal waveform includes a first channel square wave and a second channel square wave that are shifted ninety degrees out of phase.

19. The system of claim 18 wherein a leading and lagging relationship  
10 between said first channel square wave and said second channel square wave indicates a movement direction.

20. The system of claim 17 wherein said quadrature signal waveform is compatible with a universal serial bus (USB) mouse controller integrated  
15 circuit.